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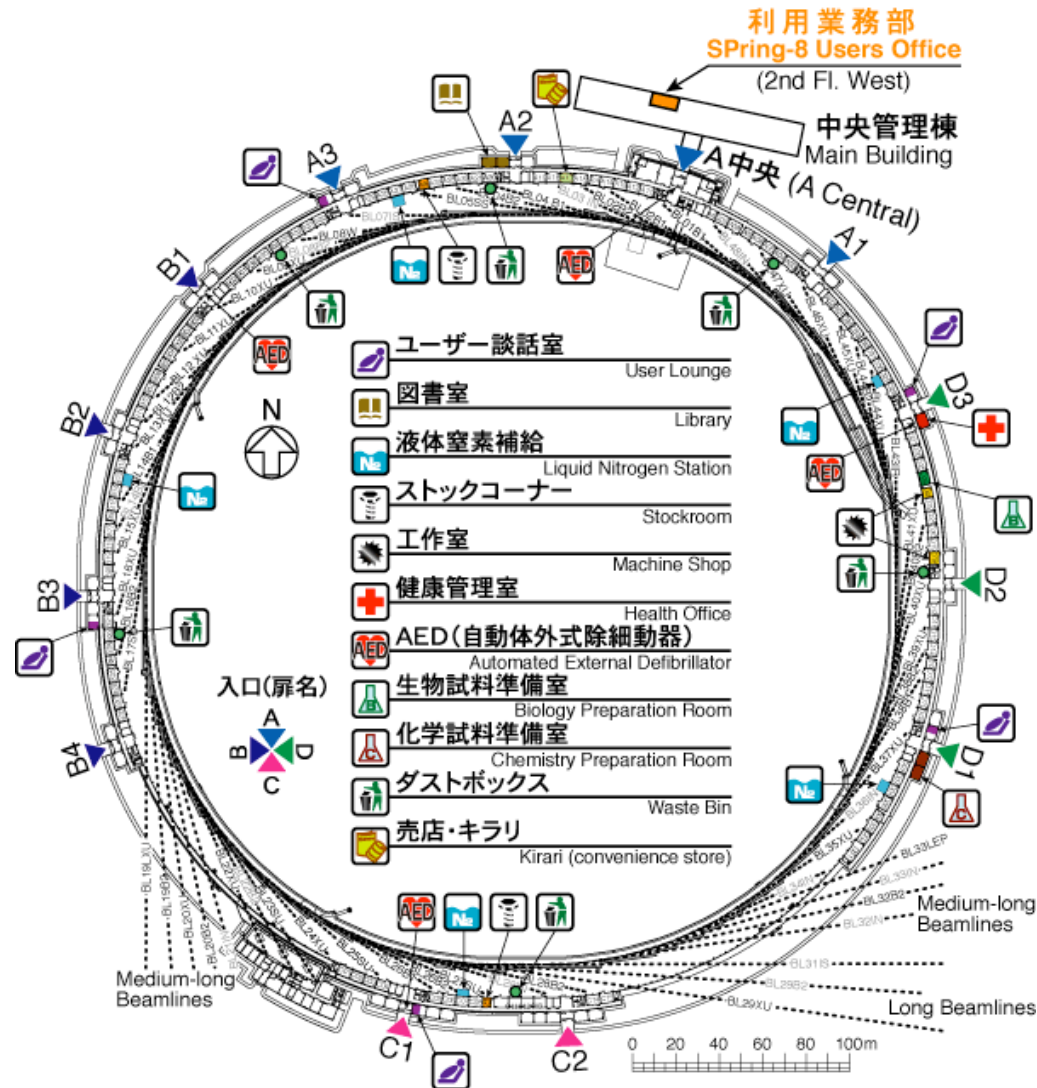
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A U.S. Department of Energy laboratory
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Time-resolved research at Spring8

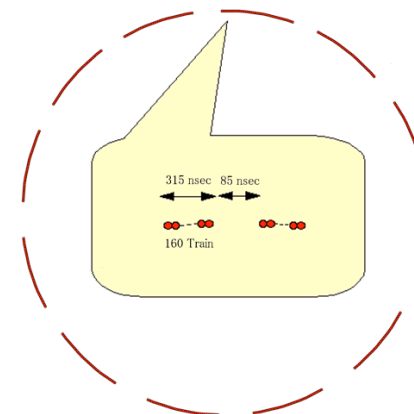
Eric Landahl
XSD

蓄積リング棟内ユーティリティ設備 Storage Ring Utility Facilities



Spring-8 Operating Mode Description

Mode	Bunch mode* ¹	Bunch interval* ²	Total current	Single bunch current* ³
A-mode	203 bunches	23.6 nsec	100 mA	
B-mode	4 bunch train x 84	51.1 nsec (57.0 nsec period)	100 mA	
C-mode	11 bunch train x 29	145.5 nsec (165.2 nsec period)	100 mA	
D-mode	1/7-filling + 5 bunches	684.3 nsec	100 mA	3.0 mA
E-mode	2/29-filling + 26 bunches	165.2 nsec	100 mA	1.4 mA
Multi-bunch	160 bunch train x 12			

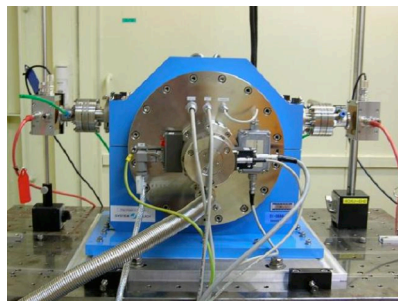


Spring-8 Operating Mode Schedule

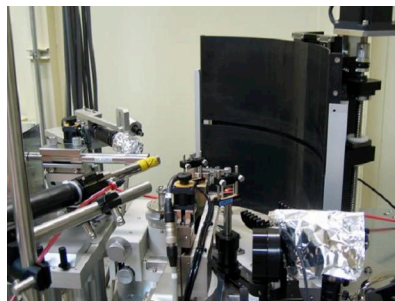
Run	User Time	
6th	10:00 January 25 - 10:00 February 2	D-mode
	10:00 February 2 - 10:00 February 7	C-mode
	10:00 February 7 - 10:00 February 13	Multi-bunch mode
	10:00 February 13 - 10:00 February 19	E-mode
	10:00 February 19 - 10:00 February 25	A-mode
1st	10:00 April 5 - 10:00 April 24	TBD
2nd	10:00 May 12 - 10:00 June 21	
3rd	10:00 June 23 - 10:00 August 1	

BL40 XU: Chopped Pink Beam

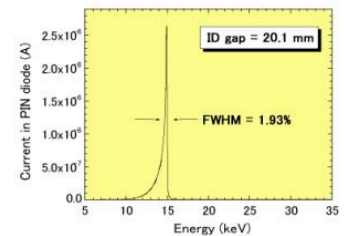
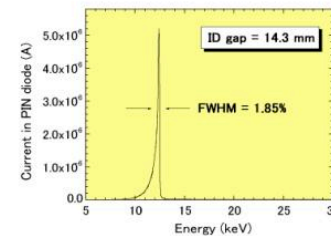
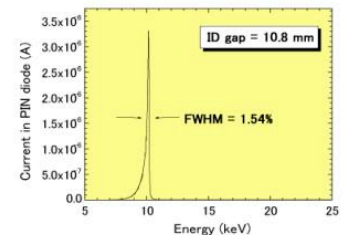
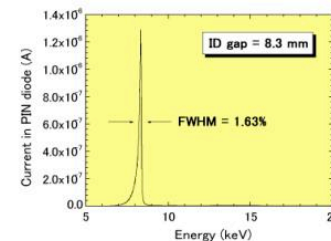
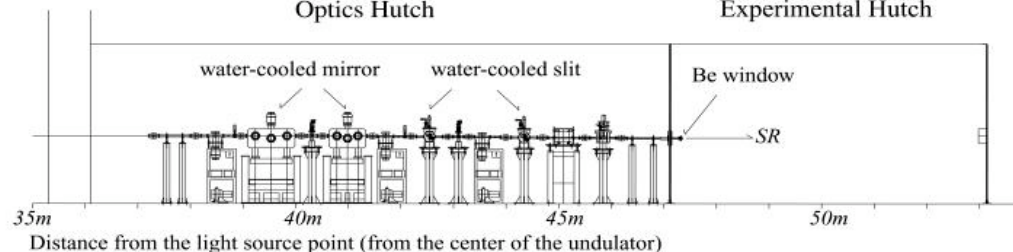
- Helical undulator, 125 x 36 mm period, 8 – 17 keV
- Julich chopper, various area detectors
- ESRF advised on beamline design
- Low heat load optional Si 111 channel cut monochromator + zone plate
- 10^{15} ph/s @ 12 keV, $250 \times 40 \mu\text{m}^2$
- Spectra Physics Regenerative Amplifier, 1 Watt @ 1 kHz, separate hutch
- TR experimental program: μ diffraction in horizontal plane in DVD-RAM



Optics Hutch

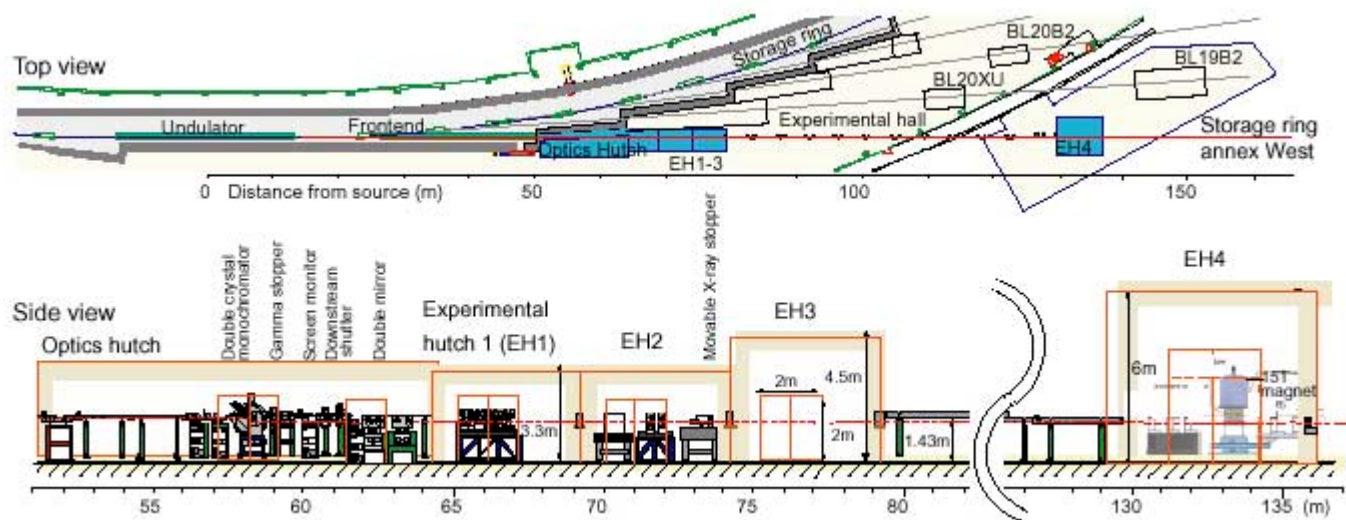


Experimental Hutch



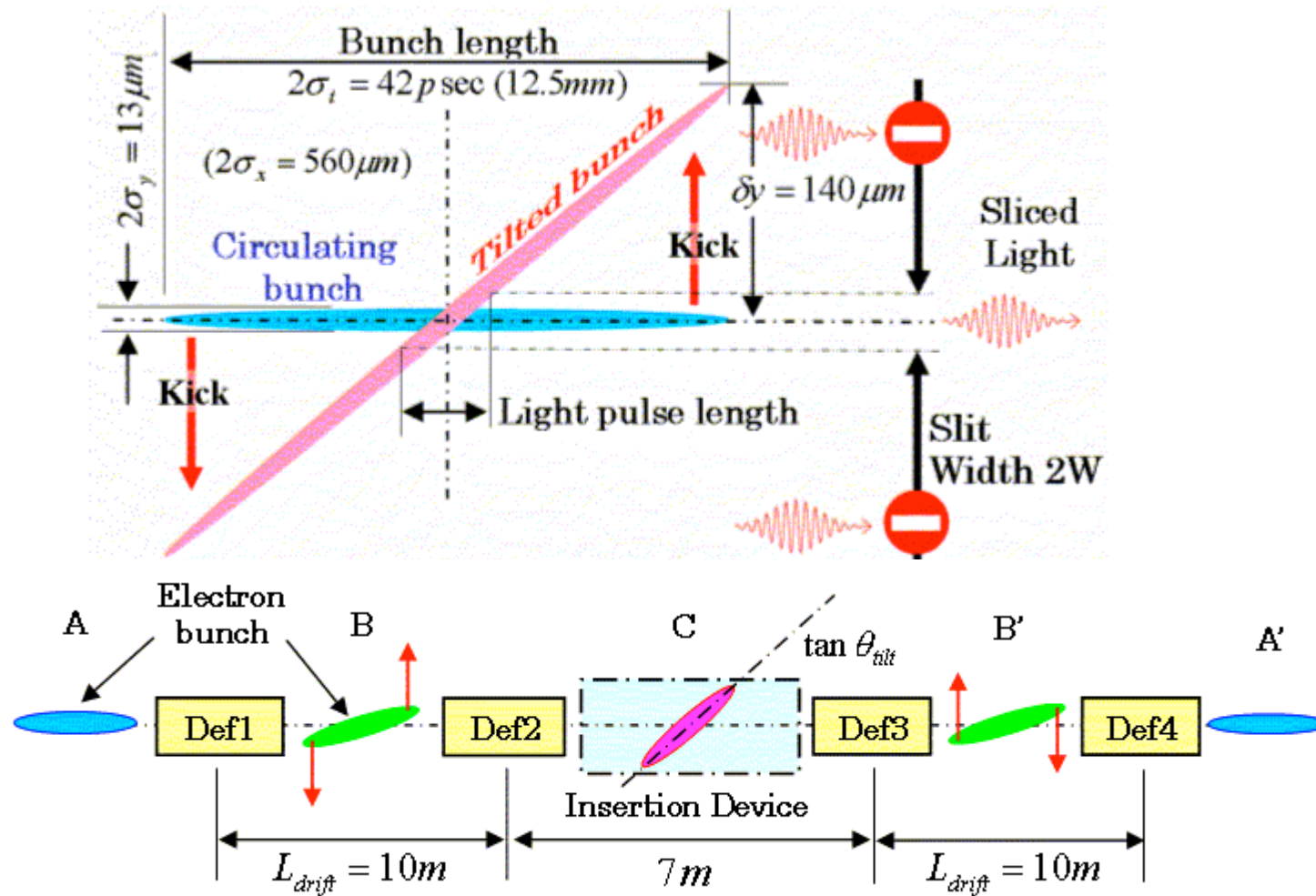
BL19LXU RIKEN SR Physics (World's brightest x-ray source)

- 27 m long undulator and cryogenic monochromator yields 2×10^{14} ph/s @ 14 keV
- 1 kHz, 1 Watt regenerative amplifier located in C-hutch, also piped to D hatch
- C hatch is kept open for different user experiments (e.g. PEEM)
- D hatch contains a high precision goniometers for triple-crystal diffractometry
- TR experiment: acoustic pulse echoes in Si and GaAs (PRL **96**, 115505 (2006))
- Hamamatsu ps x-ray streak camera for machine studies (no users)
- APD assemblies built in house and used in counting mode



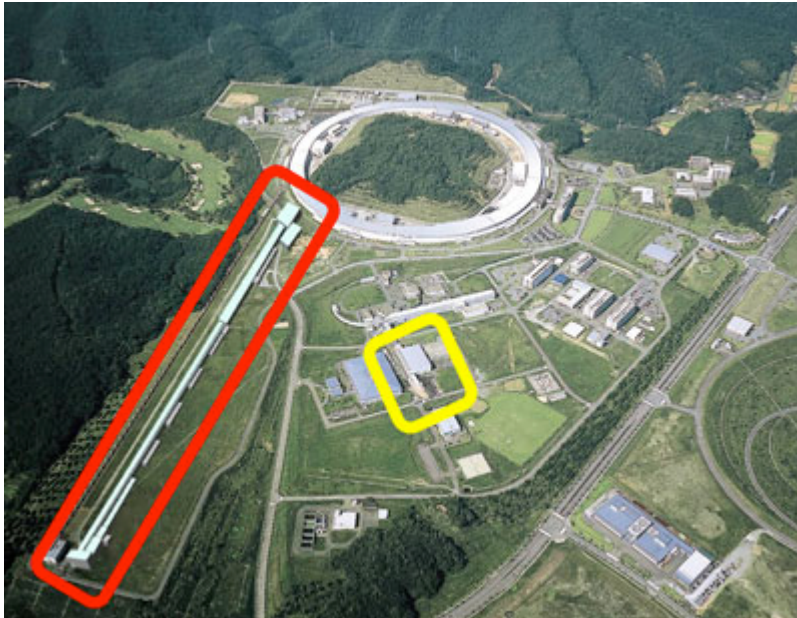
“FSX” at Spring8

Status: Superconducting crab cavity under joint study with KEK



XFEL

- Prototype FEL using a thermionic gun
- HHG setup for seeding FEL under development
- Identical laser support for beamlines and accelerator development (like LCLS)
- Earth moving has already started near the long beamlines for the XFEL



Acknowledgements

- Dr. Nobuhiro Yasuda, JASRI
- Dr. Yoshihito Tanaka, RIKEN